

Mindset Scholars Network's Portfolio of Research on Mindsets and the Learning Environment

OCTOBER 2017

In Fall 2016 the [Mindset Scholars Network](#) launched an interdisciplinary initiative to explore how learning environments shape the mindsets students develop about learning and school. The network issued a request for proposals (RFP) to network members and external collaborators for interdisciplinary studies that would utilize recently collected, large-scale datasets. With funding from the Raikes Foundation, Overdeck Family Foundation, Bill & Melinda Gates Foundation, and Joyce Foundation, the initiative's aim is to rapidly generate scientific evidence about how schools and educators at all levels can convey messages to students that they can grow their ability, that they belong and are valued at school, and that what they are doing in school matters. Fourteen projects have been funded through two rounds of the RFP, one in Fall 2016 and a second round in Fall 2017.

PROJECTS FUNDED IN FALL 2016

A BIG BIODATA APPROACH TO MINDSETS, LEARNING ENVIRONMENTS, AND COLLEGE SUCCESS

Principal Investigator: [Sidney D'Mello](#)

Co-PI: [Angela Duckworth](#)

Other Team Members: Stephen Hutt, Margo Gardner, Parker Goyer, Donald Kamenz, Chad Spurgeon, Lauri Bonacorsi

Team Disciplines: Computer Science, Developmental Psychology, Education & Human Development

Primary Research Questions:

- Which mindset-related factors gleaned from student biographical data (e.g., extracurriculars, work experience) best predict college success?
- How do students' learning environments in high school influence the mindset-related factors that predict college success?

THE EFFECT OF SCHOOL CLIMATE ON STUDENTS' SENSE OF BELONGING

Principal Investigator: [Matthew Kraft](#)

Co-PIs: [Chris Hulleman](#), Katie Buckley

Team Disciplines: Economics, Psychology, Education

Primary Research Questions:

- How does school climate affect students' reported levels of belonging?
- What dimensions of school climate are most important for promoting students' sense of belonging?
- To what degree are students holding similar levels of belonging concentrated in the same schools?

THE NATURE AND REPRODUCIBILITY OF MINDSET EFFECTS ACROSS DIVERSE CONTEXTS

Principal Investigator: [Mesmin Destin](#)

Co-PIs: [Elizabeth Tipton](#), [Stephanie Fryberg](#), [David Yeager](#)

Other Team Members: [Robert Crosnoe](#), [Chandra Muller](#), Paul Hanselman

Team Disciplines: Psychology, Statistics, American Indian Studies, Sociology

Primary Research Questions:

- How do mindsets about intelligence vary across a wide range of communities nationwide?
- How much do perceptions about the nature of intelligence explain the relationship between SES and academic performance compared to other factors?

THE ROLE OF PSYCHOLOGICALLY WISE TEACHING IN STUDENT ACHIEVEMENT

Principal Investigator: [Geoffrey Cohen](#)

Co-PI: Tanner LeBaron Wallace

Other Team Members: [Ronald Ferguson](#)

Team Disciplines: Psychology, Education, Economics

Primary Research Questions:

- How are teachers creating cultures of growth, belonging, purpose, and affirmation through their daily instructional practices?
- What "psychologically wise" instructional practices distinguish between low and high academic growth classrooms?

**MINDSET
SCHOLARS
NETWORK**

The Mindset Scholars Network is a group of leading social scientists dedicated to improving student outcomes and expanding educational opportunity by advancing our scientific understanding of students' mindsets about learning and school.

MindsetScholarsNetwork.org

LEARNING MINDSET DEVELOPMENT IN CO-REQUISITE COURSES ACROSS LEARNING CONTEXTS

Principal Investigator: [Chris Hulleman](#)

Co-PI: Stephanie Wormington

Other Team Members: [Elizabeth Tipton](#), [Ron Ferguson](#), [Tim Wilson](#)

Team Disciplines: Psychology, Education, Statistics, Economics

Primary Research Questions:

- How do learning mindsets develop during co-requisite courses (courses in which postsecondary students take a one-credit support course alongside foundational math, English, and writing courses—rather than a non-credit developmental course)?
- How do individual student, classroom, and institution-wide factors affect the relationship between students' learning mindsets and academic performance?

HOW DO TEACHERS' BEHAVIORS AND CLASSROOM ENVIRONMENTS PROMOTE IDENTITY SAFETY, GROWTH MINDSET, AND PERFORMANCE FOR UNDERSERVED STUDENTS?

Principal Investigator: [Stephanie Fryberg](#)

Co-PIs: Zoe Higheagle Strong, [Mesmin Destin](#)

Other Team Members: Laura Brady, Bruce Austin, Amy Roth McDuffie, [Chandra Muller](#)

Team Disciplines: Psychology, American Indian Studies, Education, Statistics, Sociology

Primary Research Questions:

- Which environmental factors (e.g., teachers' mindsets about intelligence and growth mindset practices) cue identity safety for underserved students, particularly for Native American students?
- How do these identity safety environmental factors facilitate or hinder the effectiveness of growth mindset interventions, particularly for underserved students?
- Are growth mindset interventions more effective in classrooms where environmental factors cue identity safety?

TEACHERS' MINDSETS ABOUT MATHEMATICAL ABILITY AS A FEATURE OF THE LEARNING ENVIRONMENT

Principal Investigator: [Andrei Cimpian](#)

Other Team Members: Joseph Robinson Cimpian, [Matthew Kraft](#), Sophia Yang-Hooper

Team Disciplines: Psychology, Economics, Education

Primary Research Questions:

- Are teachers' mindsets about mathematical ability related to their classroom practices?

- Are teachers' mindsets about mathematical ability directly related to students' learning?
- Are classroom practices related to students' perception that their teacher endorses a growth mindset? If so, which practices are most strongly related to these perceptions?
- Are there differences between stigmatized and non-stigmatized students in terms of how they perceive their teachers' mindsets? Are stigmatized students less likely to perceive that their teachers endorse a growth mindset (e.g., think that anyone can become good at math)?

DEVELOPMENTAL, NEURAL AND PSYCHOSOCIAL CORRELATES OF MINDSET AMONG LOW-SOCIOECONOMIC ADOLESCENTS FROM TWO CULTURAL GROUPS

Principal Investigator: Mary Helen Immordino-Yang

Co-PI: [Camille Farrington](#)

Other Team Members: Xiaofei Yang, Christina Krone

Team Disciplines: Neuroscience, Education

Primary Research Questions:

- Is it possible to extend mindset programs to target broader psychosocial and neurobiological health outcomes among adolescents?
- How do cultural influences on social brain development explain how exposures to cultural norms and values shape styles of social-emotional and self-processing?
- Are there practices and policies that could more effectively support the development of learning mindsets by strategically leveraging opportunities for downtime and reflection with opportunities for concrete productivity?

PROJECTS FUNDED IN FALL 2017

A NEUROBEHAVIORAL INVESTIGATION OF THE RELATIONSHIP BETWEEN ADVERSE EXPERIENCES AND LEARNING MINDSETS IN CHILDREN

Principal Investigators: [Andrei Cimpian](#), Nim Tottenham

Other Team Members: Joseph Robinson Cimpian, Kali Trzesniewski

Team Disciplines: Psychology, Economics, Education, Neuroscience

Primary Research Questions:

- Can a growth mindset serve as a protective factor that allows some children to "bounce back" despite facing considerable hardship?
- What experiences of children faced with early adversity might lead them to adopt a growth mindset?
- What are the neurobiological components that explain the link between children's experiences and their mindsets?

THE EFFECTS OF THE AFRICAN AMERICAN MALE ACHIEVEMENT (AAMA PROGRAM)

Principal Investigator: [Thomas Dee](#)

Co-PI: Emily Penner

Team Disciplines: Economics, Education

Primary Research Questions:

- What were the effects of AAMA participation on measures of academic engagement such as chronic absenteeism and the probability of being suspended or expelled?
- What are the effects of AAMA participation on diverse academic outcomes such as grades in core academic subjects, test performance, school dropout, and college matriculation?
- Do social-psychological mechanisms mediate the effects of AAMA?
- Is there any evidence that the presence of an AAMA program had “spillover” effects for non-participating students in the school?

SOCIAL AND ENVIRONMENTAL INFLUENCES ON MOTIVATION FOR LEARNING: THE ROLE OF CHILDHOOD ADVERSITY IN AFFECTING MOTIVATION AMONG OLDER CHILDREN AND ADOLESCENTS

Principal Investigator: Katie McLaughlin

Co-PI: [Rob Crosnoe](#)

Team Disciplines: Sociology, Psychology

Primary Research Questions:

- Does exposure to childhood adversity influence mindsets about intelligence, sense of belonging at school, and perceived utility value of school and do these associations vary across distinct types of adversity? (threat (i.e., exposure to violence), deprivation (i.e., an absence of cognitive and social stimulation), and socioeconomic disadvantage)?
- Are mindsets about intelligence, belonging, and perceived utility value mechanisms that link diverse forms of childhood adversity to poor academic performance later in childhood and adolescence?

DEVELOPING SPARTAN PERSISTENCE: CONNECTING STUDENTS TO RESOURCES IN A PUBLIC UNIVERSITY

Principal Investigator: [Barbara Schneider](#)

Co-PIs: John T. Yun, Soobin Kim

Team Disciplines: Sociology, Economics, Education

Primary Research Questions:

- Is there value add to assigning students to both a light-touch mindset intervention at orientation and a follow-up mentoring program offered by the university that provides support throughout the first year of college?
- Do any of these effects differ by key subgroups (e.g.,

race/ethnicity, gender, first generation in college status)?

- Do outcomes differ depending on characteristics of the mentor who works with the student during the first year of college?
- What causal mechanisms might explain how the interventions achieved their effects?

LEARNING MINDSETS, TEACHER PRACTICE, AND SCHOOL ORGANIZATIONS: BECOMING EFFECTIVE LEARNERS SURVEY AND 5 ESSENTIALS

Principal Investigator: [Camille Farrington](#)

Co-PI: Shanette Porter

Other Team Members: Christopher Young, Sangyoon Park, Faye Kroshinsky

Team Disciplines: Education, Psychology, Psychometrics

Primary Research Questions:

- How is school organization (e.g., effective leaders, collaborative teachers, involved families, supportive environments, ambitious instruction) related to students’ learning mindsets and performance?
- How are teachers’ mindsets, beliefs about students, and teaching-related beliefs/practices related to students’ learning mindsets, learning strategies, and course performance?
- What role do schools and teachers play in disparities in student learning mindsets across students’ background characteristics?

LANGUAGE AS THOUGHT: USING NATURAL LANGUAGE PROCESSING TO INVESTIGATE MINDSETS, LEARNING ENVIRONMENTS, AND COLLEGE SUCCESS

Principal Investigator: [Sidney D’Mello](#)

Co-PI: [Angela Duckworth](#)

Other Team Members: Stephen Hutt, Margo Gardner, Donald Kamenz, Abigail Quirk, Laura Allen

Team Disciplines: Computer Science, Psychology, Education

Primary Research Questions:

- How do mindsets and motivation, as coded from students’ open-ended descriptions of extracurricular activities and work experiences, predict college success and mediate the relationship between extracurricular activities / work experiences and college success?
- Can natural language processing and machine learning techniques be used to automatically measure mindsets and other motivation-related constructs from writing samples at scale?
- How do aspects of students’ high school learning environments moderate the relationship between extracurricular activities or work experiences, mindsets, and college success?